

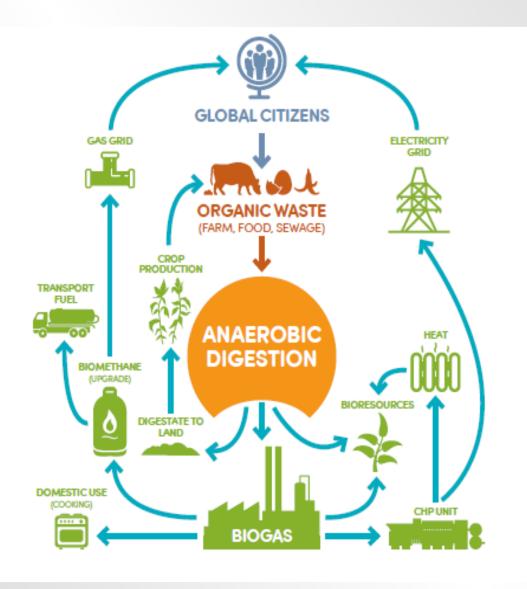


### WORLD BIOGAS ASSOCIATION

#### Global Potential of Biogas Charlotte Morton

October 2019















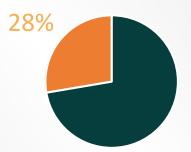
- 50 million micro-digesters
- 132,000 small, medium and large scale digesters
- 700 upgrading plants
- 87.5 TWh electricity generated (2016)
- Employed 344,000 people

## Just 2% of potential!







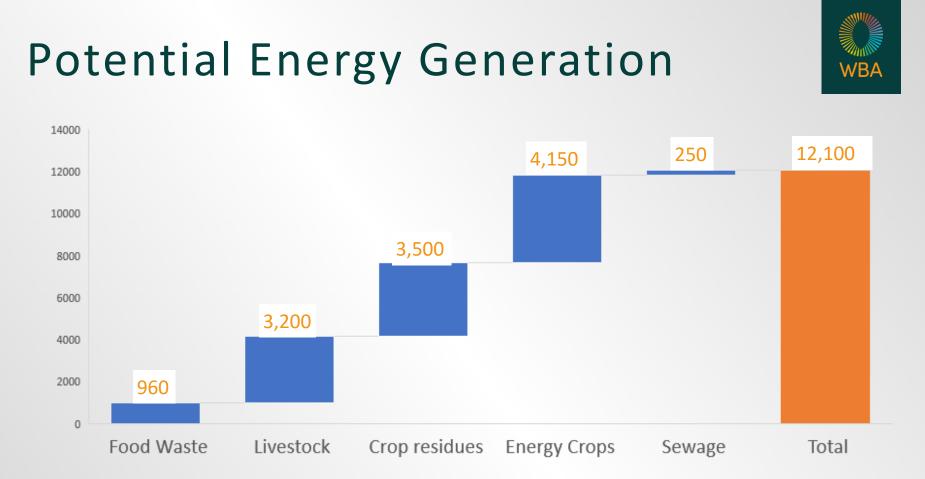




# GHG emissions reduction

Coal substitution

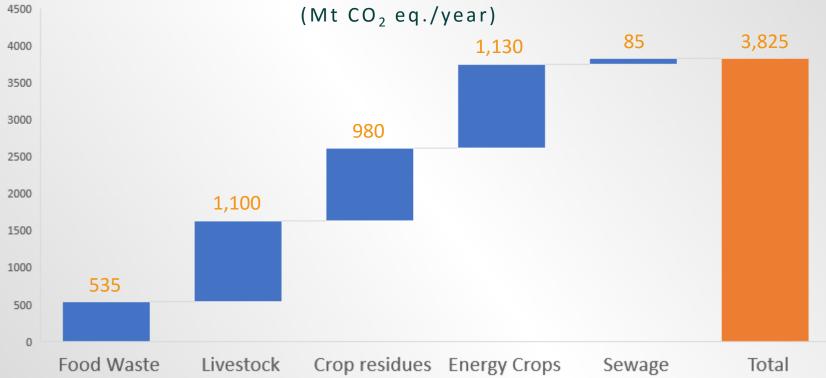
Inorganic fertiliser substitution



Natural Gas	Germany	India and China	China and Japan	Russia	Ukraine	32%
Electricity	124 million	All Agriculture	6%	India	33 million	19%



#### Potential for GHG Emissions Abatement



UK 16%	Canada	Germany	Israel	12%
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## Nutrient recycling



- Food waste and Sewage
- 82 Million hectares Brazil and Indonesia

		World Consumption	Potential of AD	
Total Nitrogen (N)	tonnes	110,027,000	7,603,580	7 %
Total Phosphate (P <sub>2</sub> O <sub>5</sub> )	tonnes	41,151,000	2,031,750	5 %
Total Potash ( $K_2O$ )	tonnes	32,838,000	1,886,992	6 %

• Nutrient availability increases



## **Policy** options

- Removal of fossil fuel subsidies
- Net zero emissions by 2040
- Biogas targets in energy plans
- AD in GHG abatement targets
- Renewable energy incentives
- Enabling safe trading and use of digestate
- Circular economy strategies
- Preferred method of treatment



## Policy options (cont'd)

- Food waste management requirements for businesses
- Nutrient recovery plans for farms
- Improved sanitation infrastructure
- Separate food waste collections for citizens
- Sustainability and GHG criteria for agricultural production
- Govt. spending on biomethane infrastructure





#### Thank you.

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